

AMENDMENTS TO THE CLAIMS

1. (amended) A method for verifying an electron treatment field created by an electron treatment beam, comprising:

directing the electron treatment beam from a treatment head toward a location to be irradiated;

positioning an imaging device downstream from the location to be irradiated; and

operating said imaging device to detect an image created by photons generated in the delivery of said electron treatment beam to said location.

2. (original) The method of claim 1, further comprising:

enhancing said image to generate a representation of said electron treatment field.

3. (original) The method of claim 1, wherein said imaging device is a flat panel imaging device.

4. (canceled)

5. (original) The method of claim 3, wherein said flat panel imaging device comprises a plurality of solid state sensors.

6. (original) The method of claim 5, wherein said solid state sensors are amorphous silicon sensors.

7. (original) The method of claim 1, wherein said imaging device comprises video technology.

8. (amended) The method of claim [1] 2, wherein said enhancing further comprises:
determining an energy of said electron treatment beam;
calculating an angular dependence of said photons on said electron treatment beam; and

generating said representation of said electron treatment field based on said detected image and said angular dependence.

9. (amended) The method of claim [1] 2, wherein said enhancing further comprises: comparing said image to an open field image to generate an enhanced image of said electron treatment field.
10. (amended) The method of claim [1] 2, further comprising: displaying said representation of said electron treatment field on an operator display console.
11. (amended) The method of claim [1] 2, further comprising: comparing said representation of said electron treatment field to a desired image of said electron treatment field.
12. (amended) The method of claim [8] 11, further comprising: adjusting at least one of a collimator position and a patient position if said comparison indicates that said representation of said electron treatment field is different from said desired image of said electron treatment field.
13. (amended) A method for verifying a treatment field in a radiation therapy device, comprising:
[positioning an imaging device at a body to be irradiated;]
directing an electron beam at [said body] an object to be irradiated;
collimating said electron beam to generate an electron treatment field; and
detecting, using [said] an imaging device, an image created by a plurality of photons after passing through said [body] object, said plurality of photons contained within said electron treatment field.
14. The method of claim 13, further comprising: enhancing said image to generate a representation of said electron treatment field.

15. (original) The method of claim 13, wherein said plurality of photons are bremsstrahlung photons.

16. (amended) The method of claim 14, further comprising:
comparing said representation with a desired image of said electron treatment field; and
repositioning at least one of said [body] object and a collimator device if said comparing indicates that said representation is not within an expected tolerance of said desired image.

17. (original) The method of claim 14, wherein said enhancing further comprises:
determining an energy of said electron treatment beam;
calculating an angular dependence of said photons on said electron treatment beam; and
generating said representation of said electron treatment field based on said detected image and said angular dependence.

18. (original) The method of claim 13, further comprising:
positioning an imaging device beneath a treatment zone;
directing an electron beam at said treatment zone;
collimating said electron beam to generate an electron treatment field;
detecting, using said imaging device, an open field image; and
comparing said open field image with said image to produce a representation of said electron treatment field.

19. (amended) A radiation treatment field verification method, comprising:
generating a radiation treatment beam comprised of one of primary electrons and primary photons;
selectively shaping said radiation treatment beam to create a radiation treatment field on an object [body];
detecting components of said radiation treatment beam on an imaging device positioned downstream of said [body]; and
generating a representation of said radiation treatment field.

20. (original) The method of claim 19, wherein said radiation treatment beam comprises primary electrons and wherein said components of said radiation treatment beam are bremsstrahlung photons generated within said radiation treatment beam.
21. (original) The method of claim 19, wherein said radiation treatment beam comprises primary photons and wherein said components of said radiation treatment beam are photons of said radiation treatment beam.
22. (original) The method of claim 19, wherein said selectively shaping is performed by controllably positioning a photon collimator and an electron collimator.
23. (original) The method of claim 20, wherein said generating a representation further comprises:
 - determining an energy of said primary electrons;
 - calculating an angular dependence of said bremsstrahlung photons on said primary electrons; and
 - generating said representation of said radiation treatment field based on said detected components and said angular dependence.
24. (amended) The method of claim 20, wherein said generating a representation further comprises:
 - generating an open field representation of said radiation treatment field; and
 - comparing said open field representation with said components detected downstream of said [body] object to generate said representation of said radiation treatment field.
25. (amended) A radiation therapy device, comprising:
 - an image detector positioned downstream from an object [body] being irradiated by an electron beam and capturing a radiation image, said electron beam having a field shape at said [body] object; and

a computing device coupled to said image detector and operative to enhance said radiation image to generate a representation of said radiation image.

26. (original) The radiation therapy device of claim 25, further comprising:
a display device coupled to said computing device and displaying said representation of said radiation image.
27. (original) The radiation therapy device of claim 25, further comprising:
at least a first collimating device positioned along a path of said electron beam and controllably positioned to generate said field shape.
28. (amended) A system for verifying an electron treatment field, comprising:
means for directing an electron treatment beam from a treatment head toward a location to be irradiated;
means for positioning an imaging device downstream from the location to be irradiated;
and
means for operating said imaging device to detect an image created by photons generated in the delivery of said electron treatment field to said location.